



BUILDING AMERICA— EXISTING HOMES



Partnerships for Home Energy Efficiency

Partnerships for Home Energy Efficiency (PHEE) is a new, multi-agency effort of the federal government to bring greater energy efficiency to the U.S. housing market with a goal of helping households cost-effectively save 10 percent or more on home energy bills over the next decade. PHEE builds upon existing policies and programs and works in partnership with manufacturers, retailers, home contractors and remodelers, utilities, states, financial organizations, and educational institutions, among others, to leverage the power of the marketplace. Collaborative efforts can significantly improve the efficiency of America's housing stock over the next decade, bringing better, cost-effective services, technologies, practices, and designs into our homes and helping us all be part of the energy efficiency solution. Savings of 10 percent on home energy bills would total almost \$20 billion a year. These efforts would also help increase the affordability and comfort of homes, reduce demand for natural gas by more than 1 quad, avoid the need for 40 new 600 MW power plants, and avoid the greenhouse gas emissions equivalent to those from more than 25 million vehicles.

REMODELER TRAINING MODULES

- ▶ Introduction & Marketing Energy Efficiency
- ▶ Using Building Science
- ▶ Understanding *House as a System* Benefits
- ▶ Kitchen Remodeling
- ▶ Bathroom Remodeling
- ▶ Space Conversions
- ▶ Room Additions
- ▶ Mechanical Systems

Building America

The U.S. Department of Energy (DOE) Building America Program is reengineering new and existing homes for energy efficiency, energy security, and affordability. This private/public partnership conducts systems research to improve overall housing performance, increase housing durability and comfort, reduce energy use, and increase energy security for America's homeowners. Program activities focus on finding solutions for new and existing homes, as well as integrating clean onsite energy systems that will allow the homebuilding industry to provide homes that produce more energy than they use.



There are more than 101 million residential households in the United States today. Approximately 74 million of these households live in single family site-built homes, 6 million live in mobile homes/manufactured houses, and 21 million live in multifamily buildings. Not surprisingly, existing residential buildings represent the single largest source of potential energy savings.

The objective of the existing homes project of Building America is to establish technology pathways that reduce energy consumption cost-effectively in American homes. The existing buildings project focuses on finding ways to adapt the results from the new homes research to retrofit applications in existing homes. Research activities include a combination of computer modeling, field demonstrations, and monitoring to develop integrated approaches to reduce energy use in existing

residential buildings. Analytical tools are being developed to guide designers and builders in selecting the best approach for each application. DOE partners with the U.S. Department of Housing and Urban Development (HUD) to incorporate research results into affordable housing. Also, DOE partners with the U.S. Environmental Protection Agency (EPA) to increase energy efficiency in existing homes through the Home Performance with ENERGY STAR® program.

Benefits to Homeowners

- ▶ Documented climate-specific *Best Practices* for homeowners, realtors, and others
- ▶ Contractor training on energy-efficient remodeling practices
- ▶ Comparison of your home's energy baseline to what is possible with an energy-efficient home performance retrofit is available on the web at <http://hes.lbl.gov/>

Benefits to Contractors

- ▶ Heating Ventilation and Air Conditioning (HVAC) *Best Practices* for remodelers and contractors with a prioritized project checklist
- ▶ Contractor training on energy-efficient remodeling and an introduction to building science
- ▶ Energy-efficient remodeling case studies
- ▶ Climate-specific *Best Practices* for new home construction
- ▶ Retrofitting case studies

Benefits to Building America Partners

- ▶ Energy-efficient remodeler training presented in PowerPoint format: 8 modules with a contractor's workbook and a teacher's guide
- ▶ HVAC *Best Practices* downloadable from the web
- ▶ *reHabitat Guide* for energy-efficient retrofitting for volunteer organizations
- ▶ *Research that works*, a list of resources for energy-efficient buildings

Building America Case Study Reports

- ▶ Washington, DC—Roof, furnace, and bathroom retrofit
- ▶ Salt Lake City, UT—Whole house rehab
- ▶ Newburg, NY—Whole house rehab
- ▶ Califon, NJ—Whole house rehab, Structural Insulated Panels (SIPs) addition, ground source heat pump and 7.2 kW solar electric (photovoltaic) system
- ▶ Arnold, MD—Insulation, furnace & windows
- ▶ Pontiac, MI—Lead abatement & whole house rehab
- ▶ Basement Insulation Systems
- ▶ Home Inspection Protocol
- ▶ Energy-efficient repairs to storm damaged housing

For More Information

Please see the Partnerships for Home Energy Efficiency website at www.energysavers.gov and click on the link to Building America.gov.